

**TEXAS DEPARTMENT OF TRANSPORTATION  
TECHNICAL PROVISIONS**

**FOR**

**SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2**

**ATTACHMENT 21-1  
TOLL SYSTEMS RESPONSIBILITY MATRIX**

**APRIL 30, 2015**

**Attachment 21-1**  
**Toll Systems Responsibility Matrix**

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	TxDOT (TOD Design) (T)			Developer (Contractor) (Dev)			System Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	1	2	3	
<b>FACILITIES</b>										
Toll plaza design layout	A	N/A	N/A	B	N/A	N/A	B	N/A	N/A	See Sec 21.3 of TPs
Metered power service to roadside equipment cabinet	B	D	C	A	A	A	B	D	C	SI to provide power requirements and special requirements for Dev to construct utilities near toll collection points
Electrical conductors from equipment pad to Toll Zone equipment	C	D	C	C	D	C	A	A	A	Dev will coordinate access to roadway for installations
Complete backup power systems: generators, automatic transfer switches, and fuel tanks	C	D	C	D	D	C	A	A	A	Dev will coordinate access to roadway for installations
Concrete pad/foundation and conduits for backup power systems	A	D	C	D	D	C	B	A	A	T to design for SI. Dev to construct grading, earthwork and subgrade for SI work. Dev will coordinate access to roadway for installations
Uninterruptible power supplies for the lane controllers/tolling equipment at Toll Zones	C	D	C	D	D	C	A	A	A	Dev will coordinate access to roadway for installations
Lightning protection & grounding	A	D	C	D	D	C	B	A	A	Dev will coordinate access to roadway for installations. Dev to coordinate with SI for SI placement of conduit prior to Dev placing pavement.

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<b>FACILITIES</b>										
Concrete encased duct bank for dedicated toll needs	C	D	C	A	A	A	C	D	C	Dev to install conduit in Duct Bank complete with pull strings
Fiber optic cables in duct bank for toll systems	B	D	C	A	A	A	B	D	C	Dev to provide fiber with 4 strands single mode dedicated fiber to each toll zone (E.g. 24 toll zones would require 96 fiber strands). No daisy chaining. Dev to install pull strings, fiber optic markers, test stations and tracer wire with fiber optic cables
Fiber optic data/ communication to termination cabinet	B	D	C	A	A	A	B	D	C	SI to provide communication/data requirements. Dev to provide and test fiber to fiber termination cabinets adjacent to each toll zone equipment cabinet pad.
Data/communication wire/fiber from termination cabinet to toll systems equipment	C	D	C	D	D	C	A	A	A	SI to install from roadside termination cabinet to toll systems equipment
Toll Zone pavement and structure, using special pavement section and conduit stub ups for pavement sensors (see Attachment 21-3 of Technical Provisions)	B	D	C	A	A	A	B	D	C	SI to provide pavement loop details with stub-up locations. T will coordinate with Dev for joint layouts. Dev to construct Stub Ups to terminate in junction boxes, provided by Dev, adjacent to toll zone pavement

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<b>FACILITIES</b>										
Loop conduit from junction box to roadside equipment cabinet	A	D	C	D	D	C	B	A	A	Dev will coordinate access to roadway for installations
Gantry equipment conduit from roadside equipment cabinet to toll systems equipment	A	D	C	D	D	C	B	A	A	Dev will coordinate access to roadway for installations
Pavement sensors	A	D	C	D	D	C	B	A	A	Dev to provide access to SI to saw cut and install pavement sensors
Gantries and foundations (includes columns and trusses)	A	D	C	D	D	C	B	A	A	T to design and SI to construct. Dev to provide access for T geotechnical borings and SI construction.
Toll equipment mounts on gantries	C	D	C	D	D	C	A	A	A	SI to install any required equipment mounts on gantries. SI to coordinate with T during the design phase to incorporate any required framing to support equipment mounts.
Concrete traffic barrier and foundation, MBGF, barrier end treatments, Toll Zone drainage, SW3P and retaining walls within Toll Zone	C	D	D	A	A	A	C	D	C	All reinforcement (barrier, pavement, etc.) within the Toll Zone shall be epoxy coated.
Roadside equipment cabinet concrete pads/foundations	A	D	C	D	D	C	B	A	A	T to design for SI to construct. Dev to provide grading, earthwork and subgrade for SI's slabs. Dev to provide SI access for construction.

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<b>FACILITIES</b>										
Toll Zone maintenance driveways	A	D	C	B	B	B	C	A	A	T to design for SI to construct maintenance driveway pavement surface. Dev to construct grading, earthwork and subgrade for SI work.
Roadside equipment cabinets (incl power, comm and HVAC systems)	C	D	C	D	D	C	A	A	A	SI to install complete. Dev will coordinate access to roadway for installations.
Toll rate signage	A	D	C	D	D	C	C	A	A	Dev will coordinate access to roadway for installations.
<b>ELECTRONIC TOLL COLLECTION SUB-SYSTEMS (ETC)</b>										
Automatic Vehicle Classification System and Image Capturing System (ICS) Hardware	C	D	C	D	D	C	A	A	A	Dev will coordinate access to roadway for installations.
Computer rack system, routers, hubs, switches, firewalls, VPN, modems, patch/distribution panels,	C	D	C	D	D	C	A	A	A	Dev will coordinate access to roadway for installations.
Toll plaza host computer	C	D	C	D	D	D	A	A	A	
Lane controller hardware	C	D	C	D	D	C	A	A	A	Dev will coordinate access to roadway for installations
Communication equipment	C	D	C	D	D	C	A	A	A	Dev will coordinate access to roadway for installations.

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<b>ELECTRONIC TOLL COLLECTION SUB-SYSTEMS (ETC)</b>										
Support equipment at TxDOT designated customer service center	C	D	C	D	D	D	A	A	A	
Commissioning and site acceptance testing	C	D	B	D	D	C	A	A	A	Dev will coordinate access to roadway for testing
Lane controller software	C	D	C	D	D	D	A	A	A	
Plaza computer Software	C	D	C	D	D	D	A	A	A	
Host computer software	C	D	C	D	D	D	A	A	A	
Toll collection system application software	C	D	C	D	D	D	A	A	A	
Maintenance Online Management System Software	C	D	C	D	D	D	A	A	A	
Operational test	C	D	B	D	D	D	A	A	A	
Training: (user and maintenance)	C	D	C	D	D	D	A	A	A	
Documentation: (user and maintenance)	C	D	C	D	D	D	A	A	A	
Documentation: ETS installation/electrical design and plans	C	D	C	D	D	D	A	A	A	
Documentation: civil as-built drawings, and contract closeout documents	C	D	C	D	D	D	A	A	A	

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	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>	
Documentation: ETS as-built drawings	C	D	C	D	D	D	A	A	A	
FCC licenses/regulations as applies to toll systems	C	D	C	D	D	D	A	A	A	